Received: 29 September 2021 | Accepted: 1 October 2021

DOI: 10.1111/1759-7714.14192

EDITORIAL

WILEY

A "water"-based educational intervention to increase the public's utilization of low-dose computed tomography-based lung-cancer screening services

Lung cancer is one of the most common cancers worldwide and is the leading cause of cancer-related death. It is therefore crucial to detect lung cancer in its early stages to decrease mortality from this disease. This editorial introduces the recommended screening test for the early detection of lung cancer and suggests strategies to increase its utilization by the public, especially in high-risk individuals.

Several methods of lung cancer screening have been introduced, such as those based on chest X-rays, sputum cytology or low-dose computed tomography (LDCT). However, studies have suggested that the former two screening methods do not decrease lung cancer mortality in various populations.[1] Currently, LDCT is recommended for lung cancer screening in clinical practice, as it exhibits good overall screening accuracy, with most studies having found its sensitivity and specificity for lung cancer as being greater than 80% and 75%, respectively.[2] More importantly, LDCT has been shown to reduce lung cancer mortality in high-risk groups, such as ever-smokers.[1] Given this demonstrated efficacy of LDCT in reducing lung cancer-related deaths, guidelines for its use to screen high-risk groups have been recommended by health-related organizations, including the United States Preventive Services Task Force. Such guidelines typically recommend that adults aged between 50 and 80 who are current smokers or have quit smoking within the past 15 years, and those who had a smoking habit of 20 packs/year, should undergo annual LDCT.[3]

However, despite the public availability of LDCT for lung cancer screening, its utilization by high-risk groups is rather low. It is therefore essential to promote LDCT utilization among high-risk groups to reduce the rates of lung cancer-associated mortality and morbidity. Health authorities worldwide could address this need by implementing lung-cancer screening programmes, via which the availability of LDCT can be publicized. Furthermore, interventions must be established to educate high-risk individuals on the importance of LDCT-based lung cancer screening and encourage them to undergo such screening. It is particularly important for these educational interventions to be available to individuals belonging to disadvantaged groups, such as ethnic minorities, as these groups are more likely to experience barriers to accessing cancer screening.[4]

It is critical that these educational interventions effectively encourage and facilitate the public to undergo LDCT-based lung cancer screening. We believe that the philosophy of the late martial artist Bruce Lee suggests how this could be achieved. Lee's philosophy is perhaps best represented by his statement on how to best deal with a challenge:

"*Empty your mind*, *be formless*, *shapeless*, *like water. You put water into a cup*, *it becomes the cup. You put water into a bottle*, *it becomes the bottle. You put it into a teapot*, *it becomes the teapot. Now water can flow or it can crash. Be water*, *my friend*." (Bruce Lee).

Here, we outline how the essence of Lee's "be water" philosophy could be used to develop optimal educational interventions to increase LDCT-based lung cancer screening uptake by the public.

First, the teaching and learning strategies used for the dissemination of health information during an intervention should be "formless". This means that any information-presentation format that can facilitate public understanding of lung cancer screening should be considered for use, especially for interventions administered to those who are less literate. As such, a multimedia educational approach is optimal, as it allows health information to be disseminated via a combination of strategies, including lectures, video presentations, information booklets, and educational websites. Moreover, the use of graphics and interactive media during intervention delivery can enhance engagement of participants, enabling them to better assimilate the supplied information. Thus, participants in multimedia-based educational interventions would be effectively equipped with key knowledge on lung cancer and its prevention, which will empower them to engage in healthy behaviors that include undergoing LDCT-based screening for the early detection of lung cancer.

Second, the content of an educational intervention should be "shapeless". This means that high-risk individuals, such as smokers, should be supplied with health information that can be adapted to address their specific educational needs, rather than rigorously formulated

information that baldly presents the evidence on the need for smokers to undergo regular LDCT-based lung cancer screening. Such "shapeless" information could also be used to address preconceived notions of smokers that may discourage them from undergoing screening. For example, some smokers may believe that it is better to not know whether one has lung cancer and that the radiation used during screening can cause lung cancer. These factors can reduce the intention of smokers to undergo LDCT-based lung cancer screening. Therefore, the content of interventions targeting these high-risk individuals should emphasize that lung cancer detected early by LDCT is not invariably fatal, as this would assuage their fears of screening resulting in a positive diagnosis. The content should also correct misconceptions about the risk of acquiring lung cancer during screening. The development of interventions based on such "shapeless" content would thereby effectively address the informational needs of high-risk individuals, encouraging them to actively seek LCDT-based screening to minimize their risk of lung cancer mortality.

Third, the approach used to implement an educational intervention should be like "water", in that it enables health information on the importance of LDCT-based lung cancer screening to "flow" to all corners of a community. This sufficiently wide dissemination could be achieved by health authorities fostering collaborations with nongovernmental organizations (NGOs) to offer support services to local residents in a community during the delivery of these interventions. NGOs could thereby help to promote the educational interventions to residents, encouraging the participation of residents in these interventions and enabling the information to reach a maximum number of high-risk individuals in a community.

Finally, interventions should be designed to dispense health information to high-risk individuals to increase their knowledge on how lung cancer can be effectively prevented, and "crash" the disease. Just as the "crashing" of waves on land can result in erosion, these individuals should be motivated to take decisive action to prevent lung cancer by undergoing LDCT-based screening, which provides the best opportunity for the early detection and successful "erosion" (i.e., treatment) of the disease. To achieve this, community health workers (CHWs) could be employed to deliver these interventions as they have a public-health educational background, are trusted by their community peers, and understand the cultural habits and beliefs of their peers. This means that CHWs are uniquely positioned to motivate their peers to modify their lung-cancer screening behaviors and provide them with navigational assistance to use lung-cancer screening services. CHW-led interventions can be especially effective in modifying the health behaviors of ethnic minority groups, as evidenced by our previous study that demonstrated the effectiveness of a CHW-led multimedia intervention in promoting the uptake of cervical cancer screening among South Asian ethnic minorities.[5] Health authorities should therefore consider allocating more resources to train CHWs to deliver educational interventions on lung cancer screening, enabling these interventions to become part of routine health-promotion programmes implemented by various NGOs.

We believe that such CHW-led multimedia educational interventions on lung cancer prevention and screening will be like "water", meaning that they will supply health information and guidance in a manner that will lead to substantial improvements in the knowledge and health of high-risk individuals. We hope that these interventions will be implemented at NGOs worldwide in the near future.

Bernard M. H. Law
Winnie K. W. So
Cho Lee Wong

The Nethersole School of Nursing, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong, China

Correspondence
Winnie K. W. So, The Nethersole School of Nursing, The Chinese University of Hong Kong, 7/F Esther Lee Building, Shatin, The New Territories, Hong Kong SAR, China.
Email: winnieso@cuhk.edu.hk

ORCID

Bernard M. H. Law https://orcid.org/0000-0001-9571-6893
Winnie K. W. So https://orcid.org/0000-0001-9243-2924
Cho Lee Wong https://orcid.org/0000-0001-6640-1323

REFERENCES

1. Manser R, Lethaby A, Irving LB, Stone C, Byrnes G, Abramson MJ, et al. Screening for lung cancer. Cochrane Database Syst Rev. 2013; 2013(6):CD001991.
2. Jonas DE, Reuland DS, Reddy SM, Nagle M, Clark SD, Weber RP, et al. Screening for lung cancer with low-dose computed tomography: updated evidence report and systematic review for the US preventive services task force. JAMA. 2021;325(10):971–87.
3. U.S. Preventive Services Task Force [Internet]. Lung Cancer: Screening; 2021. [cited 2021 Sep 28]. Available from: https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/lung-cancer-screening#fullrecommendationstart
4. So WKW, Law BMH, Choi KC, Chan DNS, Chan CWH. A mixed-method study examining cancer screening uptake among South Asian ethnic minorities in Hong Kong. Asia Pac J Oncol Nurs. 2020;7(1):12–7.
5. Wong CL, Choi KC, Chen J, Law BMH, Chan DNS, So WKW. A community health worker-led multicomponent program to promote cervical cancer screening in south Asian women: a cluster RCT. Am J Prev Med. 2021;61(1):136–45.